

Department of Energy

§ 431.64

appliance standards/. Standards can be obtained from the sources listed below.

(b) ANSI. American National Standards Institute, 25 W. 43rd Street, 4th Floor, New York, NY 10036, 212-642-4900, or go to <http://www.ansi.org>:

(1) ANSI /AHAM HRF-1-2004, *Energy, Performance and Capacity of Household Refrigerators, Refrigerator-Freezers and Freezers*, approved July 7, 2004, IBR approved for § 431.64.

(2) [Reserved]

(c) ARI. Air-Conditioning and Refrigeration Institute, 4100 N. Fairfax Dr., Suite 200, Arlington, VA 22203, or <http://www.ari.org/std/standards.html>:

(1) ARI Standard 1200-2006, *Performance Rating of Commercial Refrigerated Display Merchandisers and Storage Cabinets*, 2006, IBR approved for §§ 431.64 and 431.66.

(2) [Reserved]

[74 FR 1139, Jan. 9, 2009]

§ 431.64 Uniform test method for the measurement of energy consumption of commercial refrigerators, freezers, and refrigerator-freezers.

(a) *Scope*. This section provides the test procedures for measuring, pursuant to EPCA, the daily energy consumption in kilowatt hours per day (kWh/day) for a given product category and volume or total display area of commercial refrigerators, freezers, and refrigerator-freezers.

(b) *Testing and calculations*. (1) Determine the daily energy consumption of

each covered commercial refrigerator, freezer, or refrigerator-freezer by conducting the test procedure set forth in the Air-Conditioning and Refrigeration Institute (ARI) Standard 1200-2006, "Performance Rating of Commercial Refrigerated Display Merchandisers and Storage Cabinets," section 3, "Definitions," section 4, "Test Requirements," and section 7, "Symbols and Subscripts." (Incorporated by reference, see § 431.63) For each commercial refrigerator, freezer, or refrigerator-freezer with a self-contained condensing unit, also use ARI Standard 1200-2006, section 6, "Rating Requirements for Self-contained Commercial Refrigerated Display Merchandisers and Storage Cabinets." (Incorporated by reference, see § 431.63) For each commercial refrigerator, freezer, or refrigerator-freezer with a remote condensing unit, also use ARI Standard 1200-2006, section 5, "Rating Requirements for Remote Commercial Refrigerated Display Merchandisers and Storage Cabinets." (Incorporated by reference, see § 431.63)

(2) Conduct the testing required in paragraphs (b)(1) of this section, and determine the daily energy consumption, at the applicable integrated average temperature in the following table. The integrated average temperature is determined using the required test method.

Category	Test procedure	Integrated average temperatures
(i) Refrigerator with Solid Door(s)	ARI Standard 1200-2006*	38 °F (±2 °F).
(ii) Refrigerator with Transparent Door(s)	ARI Standard 1200-2006*	38 °F (±2 °F).
(iii) Freezer with Solid Door(s)	ARI Standard 1200-2006*	0 °F (±2 °F).
(iv) Freezer with Transparent Door(s)	ARI Standard 1200-2006*	0 °F (±2 °F).
(v) Refrigerator-Freezer with Solid Door(s)	ARI Standard 1200-2006*	38 °F (±2 °F) for refrigerator compartment. 0 °F (±2 °F) for freezer compartment.
(vi) Commercial Refrigerator with a Self-Contained Condensing Unit Designed for Pull-Down Temperature Applications and Transparent Doors.	ARI Standard 1200-2006*	38 °F (±2 °F).
(vii) Ice-Cream Freezer	ARI Standard 1200-2006*	-15.0 °F (±2 °F).
(viii) Commercial Refrigerator, Freezer, and Refrigerator-Freezer with a Self-Contained Condensing Unit and without Doors.	ARI Standard 1200-2006*	(A) For low temperature applications, the integrated average temperature of all test package averages shall be 0 °F (±2 °F). (B) For medium temperature applications, the integrated average temperature of all test package averages shall be 38.0 °F (±2 °F).

§ 431.65

10 CFR Ch. II (1–1–11 Edition)

Category	Test procedure	Integrated average temperatures
(ix) Commercial Refrigerator, Freezer, and Refrigerator-Freezer with a Remote Condensing Unit.	ARI Standard 1200–2006*	(A) For low temperature applications, the integrated average temperature of all test package averages shall be 0 °F (±2 °F). (B) For medium temperature applications, the integrated average temperature of all test package averages shall be 38.0 °F (±2 °F).

* Incorporated by reference, see § 431.63.

(3) Determine the volume of each covered commercial refrigerator, freezer, or refrigerator-freezer using the methodology set forth in the ANSI/AHAM HRF-1-2004, “Energy, Performance and Capacity of Household Refrigerators, Refrigerator-Freezers and Freezers,” (Incorporated by reference, see § 431.63) section 3.21, “Volume,” sections 4.1 through 4.3, “Method for Computing Total Refrigerated Volume and Total Shelf Area of Household Refrigerators and Household Wine Chillers,” and sections 5.1 through 5.3, “Method for Computing Total Refrigerated Volume and Total Shelf Area of Household Freezers.”

§ 431.65 Units to be tested.

For each basic model of commercial refrigerator, freezer, or refrigerator-freezer selected for testing, a sample of sufficient size shall be selected at random and tested to ensure that—

(a) Any represented value of estimated energy consumption or other measure of energy consumption of a basic model for which consumers would favor lower values shall be no less than the higher of:

(1) The mean of the sample, or

(2) The upper 95 percent confidence limit of the true mean divided by 1.10; and

(b) Any represented value of the energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be no greater than the lower of:

(1) The mean of the sample, or

(2) The lower 95 percent confidence limit of the true mean divided by 0.90.

(Components of similar design may be substituted without requiring additional testing if the represented meas-

ures of energy continue to satisfy the applicable sampling provision.)

[75 FR 666, Jan. 5, 2010]

ENERGY CONSERVATION STANDARDS

§ 431.66 Energy conservation standards and their effective dates.

(a) In this section—

(1) The term “AV” means the adjusted volume (ft³) (defined as 1.63 × frozen temperature compartment volume (ft³) + chilled temperature compartment volume (ft³)) with compartment volumes measured in accordance with the Association of Home Appliance Manufacturers Standard HRF1-1979.

(2) The term “V” means the chilled or frozen compartment volume (ft³) (as defined in the Association of Home Appliance Manufacturers Standard HRF1-1979).

(3) The term “TDA” means the total display area (ft²) of the case, as defined in the ARI Standard 1200–2006, appendix D (incorporated by reference, see § 431.63).

(b) Each commercial refrigerator, freezer, and refrigerator-freezer with a self-contained condensing unit designed for holding temperature applications manufactured on or after January 1, 2010, shall have a daily energy consumption (in kilowatt hours per day) that does not exceed the following:

Category	Maximum daily energy consumption (kilowatt hours per day)
Refrigerators with solid doors	0.10V + 2.04.
Refrigerators with transparent doors.	0.12V + 3.34.
Freezers with solid doors	0.40V + 1.38.
Freezers with transparent doors.	0.75V + 4.10.
Refrigerator/freezers with solid doors.	the greater of 0.27AV–0.71 or 0.70.

(c) Each commercial refrigerator with a self-contained condensing unit